

In the Claims:

Claims 1 to 7 (Canceled).

1       8. (Currently amended) A milling method for the production of  
2           a structural component having a desired final contour to be  
3           produced by milling from at least one material that is  
4           difficult to machine by chip-cutting, while producing  
5           depressions with at least one sidewall, whereby a milling  
6           tool is moved along at least one defined tool path for the  
7           milling, characterized in that, in addition to the or each  
8           tool path, at least one collision contour respectively  
9           corresponding to a surface or an edge of the at least one  
10          sidewall of the desired final contour of the structural  
11          component to be produced is defined and the position or  
12          orientation of the milling tool along the or each tool path  
13          relative to the or each collision contour is monitored  
14          in an automated comparison of the or each tool path with  
15          the or each collision contour to determine whether an  
16          expected collision exists between the milling tool and the  
17          at least one collision contour corresponding to the surface  
18          or the edge of the desired final contour of the structural  
19          component to be produced, and if the expected collision is  
20          determined to exist then the position or orientation of the  
21          milling tool is changed and/or an error message is  
22          generated to avoid the structural component being damaged  
23          by the milling tool.

1 10. (Previously presented) The method according to claim 8,  
2 characterized in that, for the milling of the depressions  
3 that are bounded by two of the sidewalls, two collision  
4 contours are defined, of which a first collision contour  
5 lies on a first said sidewall and a second collision  
6 contour lies on a second said sidewall.

1 11. (Previously presented) The method according to claim 10,  
2 characterized in that, when the milling tool damages the  
3 collision contour that lies on the sidewall that is  
4 currently to be milled, the position or orientation of the  
5 milling tool is changed so that the expected collision of  
6 the milling tool with the collision contour is avoided.

4                   milling tool so that the expected collision of the milling  
5                   tool with the collision contour is avoided.

1       13. (Previously presented) The method according to claim 10,  
2                   characterized in that, when the milling tool is expected to  
3                   collide with the collision contour that lies on the  
4                   sidewall lying opposite the sidewall that is currently to  
5                   be milled, an error protocol and/or an error message is  
6                   generated.

1       14. (Previously presented) The method according to claim 13,  
2                   characterized in that the error protocol is used for the  
3                   dimensioning of the milling tool.

1       15. (Previously presented) The method according to claim 13,  
2                   characterized in that the error protocol is used for  
3                   determining a miller diameter of the milling tool.

1       16. (Previously presented) The method according to claim 8,  
2                   characterized in that the structural component to be  
3                   produced is an integral bladed rotor for a gas turbine,  
4                   wherein the depressions form flow channels and the  
5                   sidewalls form blade surfaces of the integral bladed rotor.

1       17. (Previously presented) The method according to claim 8,  
2                   wherein the error message is generated if the milling tool

3           is expected to collide with at least one of the collision  
4           contours.

Claims 18 and 19 (Canceled).

1       20. (Previously presented) The method according to claim 19,  
2           wherein each said collision contour is respectively defined  
3           by moving the milling tool along and in contact with a  
4           respective one of the edges of a sample of the component to  
5           be produced.

1       21. (Currently amended) A method of producing a milled  
2           component having a desired milled shape defined by a  
3           desired final contour to be produced by milling a raw  
4           material with a milling tool, comprising the steps:

- 5           a) defining a proposed tool path along which said milling  
6           tool will be moved to mill said raw material into  
7           [[a]] said desired milled shape of said milled  
8           component, wherein said tool path defines the space  
9           that will be occupied by said milling tool as said  
10          milling tool is moved to mill said raw material;
- 11          b) defining at least one collision contour of said  
12          desired milled shape of said milled component, wherein  
13          each said collision contour establishes a respective  
14          boundary which may not be crossed by said proposed  
15          tool path to avoid damaging said desired milled shape  
16          of said milled component to be produced;

- 17           c) comparing said proposed tool path with said at least  
18           one collision contour to determine whether said  
19           proposed tool path crosses said at least one collision  
20           contour;
- 21           d) if said proposed tool path is determined to cross said  
22           at least one collision contour in said step c), then  
23           generating a collision signal indicative of a  
24           collision, and in response to said collision signal,  
25           revising said proposed tool path to thereby define a  
26           final tool path that will not cross said at least one  
27           collision contour;
- 28           e) if said proposed tool path is determined not to cross  
29           said at least one collision contour in said step c),  
30           then using said proposed tool path as said final tool  
31           path; and
- 32           f) milling said raw material by moving said milling tool  
33           along said final tool path to produce said milled  
34           component.

1       22. (Previously presented) The method according to claim 21,  
2       wherein said collision signal comprises an error message  
3       indicating to an operating personnel that said collision  
4       has been determined.

1       23. (Previously presented) The method according to claim 21,  
2       wherein said collision signal comprises an error protocol  
3       that is carried out if said collision has been determined.

Claim 24 (Canceled).

1       25. (Previously presented) The method according to claim 21,  
2       wherein said step of defining said at least one collision  
3       contour comprises moving said milling tool along and in  
4       contact with at least one edge of a sample model that has  
5       said desired milled shape of said milled component, wherein  
6       said at least one edge thereby defines said at least one  
7       collision contour.

Claims 26 and 27 (Canceled).

1       28. (Previously presented) The method according to claim 21,  
2       wherein said comparing in said step c) is carried out as an  
3       automated comparison.

Claims 29 and 30 (Canceled).

1       31. (New) A milling method for the production of a structural  
2       component from at least one material that is difficult to  
3       machine by chip-cutting, while producing depressions with  
4       at least one sidewall, whereby a milling tool is moved  
5       along at least one defined tool path for the milling,  
6       characterized in that, in addition to the or each tool  
7       path, at least one collision contour respectively  
8       corresponding to an edge of the at least one sidewall of

9           the structural component to be produced is defined and the  
10          position or orientation of the milling tool along the or  
11          each tool path relative to the or each collision contour is  
12          monitored in an automated comparison of the or each tool  
13          path with the or each collision contour to determine  
14          whether an expected collision exists between the milling  
15          tool and the at least one collision contour corresponding  
16          to the edge of the structural component to be produced, and  
17          if the expected collision is determined to exist then the  
18          position or orientation of the milling tool is changed  
19          and/or an error message is generated to avoid the  
20          structural component being damaged by the milling tool.

1        32. (New) The method according to claim 31, wherein each said  
2          collision contour respectively corresponds exactly to only  
3          one of the edges of the component to be produced, and said  
4          at least one collision contour does not collectively define  
5          an entire topography of a surface of the structural  
6          component to be produced.

1        33. (New) A method of producing a milled component by milling  
2          a raw material with a milling tool, comprising the steps:  
3           a) defining a proposed tool path along which said milling  
4              tool will be moved to mill said raw material into a  
5              desired milled shape of said milled component, wherein  
6              said tool path defines the space that will be occupied

7 by said milling tool as said milling tool is moved to  
8 mill said raw material;

9 b) defining at least one collision contour of said  
10 desired milled shape of said milled component, wherein  
11 each said collision contour corresponds to an edge of  
12 said desired milled shape of said milled component and  
13 establishes a respective boundary which may not be  
14 crossed by said proposed tool path to avoid damaging  
15 said desired milled shape of said milled component to  
16 be produced;

17 c) comparing said proposed tool path with said at least  
18 one collision contour to determine whether said  
19 proposed tool path crosses said at least one collision  
20 contour;

21 d) if said proposed tool path is determined to cross said  
22 at least one collision contour in said step c), then  
23 generating a collision signal indicative of a  
24 collision, and in response to said collision signal,  
25 revising said proposed tool path to thereby define a  
26 final tool path that will not cross said at least one  
27 collision contour;

28 e) if said proposed tool path is determined not to cross  
29 said at least one collision contour in said step c),  
30 then using said proposed tool path as said final tool  
31 path; and

32 f) milling said raw material by moving said milling tool  
33 along said final tool path to produce said milled  
34 component.

1       34. (New) The method according to claim 33, wherein each said  
2            collision contour respectively corresponds exactly to only  
3            one said edge of said desired milled shape of said milled  
4            component, and said at least one collision contour does not  
5            collectively define an entire topography of said desired  
6            milled shape of said milled component.